



PATENT APPLICATION
MO-6846
LeA 33,663

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION OF)
CHRISTOPH SCHWEMLER ET AL) GROUP NO.: 1753
)
SERIAL NUMBER: 10/009,909) EXAMINER:
) ARUN S. PHASGE
FILED: FEBRUARY 20, 2002)
)
TITLE: METHOD OF DECOMPOSING)
ORGANIC COMPOUNDS IN WATER)

APPEAL BRIEF

Commissioner for Patents
P. O. Box 1450
Alexandria, VA 22313-1450

Sir:

This Brief is an appeal from the Final Office Action of the Examiner dated November 2, 2006. A Notice of Appeal was filed February 2, 2007. A separate Petition for Extension of Time Under 37 CFR 1.136(a) is being filed simultaneously herewith.

I. REAL PARTY IN INTEREST

This application is assigned to Bayer AG. Thus, Bayer AG is the real party in interest by virtue of an assignment filed February 27, 2002 at reel 012659, frame 0461.

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an enveloped addressed to: Commissioner for Patents, Alexandria, VA 22313-1450 April 26, 2007

Date

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Name of applicant, assignee or Registered Representative

Signature

April 26, 2007

Date

04/26/2007 REFILED 00000034 133848
01 PC:1462 500.00 DA

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II. RELATED APPEALS AND INTERFERENCES

There are no pending appeals or interferences which Appellants' are aware of that may be related to, would directly affect, would be affected by or have a bearing on the Board's decision in this appeal.

III. STATUS OF CLAIMS

The above-referenced application was originally filed containing Claims 1-7. These and additional claims have been cancelled in prosecution. Presently pending and stand rejected are Claims 10-14 and 16-20. These claims are the subject of this appeal.

IV. STATUS OF AMENDMENTS

No amendments were filed by Appellants after final rejection.

V. SUMMARY OF CLAIMED SUBJECT MATTER

Independent Claim 19 is directed to a process for decomposing organic compounds present in waste water (page 1, line 3). The process comprising (i) obtaining waste water having Total Organic Carbon (TOC) content greater than 2 ppm (page 5, line 23), pH value lower than 7 (page 6, line 29), at least 0.1% by weight of dissolved carbonic acid or carbonates (page 6, line 12) and 2 to 20% by weight common salt (page 7, lines 16-17) (ii) treating the waste water with ozone under specified time, temperature and pressure parameters (page 6, lines 15-20 and page 7, lines 7-9), and (iii) obtaining water having TOC content lower than 1 ppm (page 5, lines 17-18) and pH greater than 7.5 (page 6, line 30).

Each of subsidiary Claims 11, 12, 13 and 14 depend directly from Claim 19.

Independent Claim 20 is directed to a process for producing chlorine (page 5, line 2) comprising obtaining waste water having TOC content greater than 2 ppm (page 5, line 23), pH value lower than 7 (page 6, line 29), at least 0.1% by weight of dissolved carbonic acid or carbonates (page 6, line 12) and 2 to 20% by weight common salt (page 7, line 16-17) (ii) treating the waste water with ozone under specified time, temperature and pressure parameters (page 6, lines 15-20 and page 7, lines 7-9) to obtain an aqueous salt solution having TOC content lower than 1 ppm (page 5, lines 17-18) and pH greater than 7.5 (page 6, line 30) and (iii) subjecting the salt solution to electrolysis (page 7, lines 13-14).

Each of Claims 16, 17 and 18 depend directly from Claim 20.

Key features common to the claimed processes concern (I) the compositional makeup of the waste water, and (II) parameters framing the treatment with ozone. Accordingly the waste water is characterized in that its TOC content is greater than 2 ppm, its pH is less than 7, the content its dissolved carbonic acid or carbonates is at least 0.1wt.% and its common salt content is 2 to 20wt.%. The ozone treatment is carried out at temperatures of 10 to 130°C, absolute pressure of 0.5 to 3 bar, over a period of 1 minute to 10 hours, resulting in water having TOC content of less than 1 ppm and pH greater than 7.5.

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Claims 11-12, 14 and 19 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent 3,952,088 to Brown et al (herein Brown) in view of JP 51-166987 (herein Nanba).

Claims 13,16-18 and 20 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Brown in view of Nanba and further in view of U.S. Patent 6,103,092 to Silva (herein Silva). (For the record, Claim 13 that depends from Claim 19 is believed erroneously included with this rejection)

VII. ARGUMENTS

Brown in view of Nanba do not legally combine under 35 U.S.C. 103(a) to deny patentability to Claims 11-12, 14 and 19.

The process of Claim 19 and the claims dependent therefrom refers to waste water having TOC content greater than 2 ppm and pH lower than 7. Resulting from the ozone treatment is water containing less than 1 ppm TOC and featuring pH greater than 7.5, i.e. basic.

Brown disclosed treating with ozone the aqueous effluent from the dehydrochlorination of dichlorobutene and then with chlorine to attain acidic pH.

Nanba disclosed treatment of waster water with air at pH lower than 4.5 and then adding an alkaline agent in order to increase the pH to 6 - 8 for treatment with ozone. Nothing in the document refers to pH less than 7 before treatment with ozone and higher than 7.5 resulting from that treatment.

Nothing in the cited art disclosed pH value of less than 7 before treatment with ozone and higher than 7.5 after that treatment.

Moreover, nothing in the record suggests combining Brown's process (ozone treatment followed by chlorine to attain acidic pH) with Nanba (air treatment of waste water and then adding an alkaline agent prior to ozone treatment).

There is nothing in the cited references beyond mention of the several elements of the present invention. In the absence of a direction or guidelines as to how or why these elements may be combined, the rejection falls short of the *prima facie* case. The relevant inquiry is not whether each element existed in the prior art, but whether the art made obvious the invention as a whole. An essential factor in

structuring a valid rejection sounding in obviousness is the incentive to combine. See W.L.Gore & Associates, Inc. v. Garlock, Inc. 6 USPQ2d 1277 Fed. Cir. 1988).

Here not only is there no motivation to combine the elements in the prior art but the record includes nothing to guide the art-skilled in determining which of the disclosed elements is to be included and which is to be ignored.

Brown in view of Nanba and further in view of Silva do not legally combine under 35 U.S.C. 103(a) to deny patentability to Claims 13, 15-18 and 20

Brown and Nanba were discussed above and the shortcoming of their combination in the present context noted. Silva disclosed that a sodium chloride containing solution that has been purified by the removal of organic contaminants can be used to form chlorine by electrolysis.

Nothing in Silva is seen to in anyway augment the combination of Brown with the '987 document to result in describing the invention as presently claimed.

In view of the preceding arguments, Appellants' respectfully submit that Examiner's rejections are in error and respectfully request that they be reversed. The allowance of Claims 11-14 and 16-20 is respectfully requested.

Respectfully submitted,

By _____



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VIII. CLAIMS APPENDIX

Claims 1-10. (Cancelled)

Claim 11. The process of Claim 19 wherein the waste water contains 0.3 to 1.5 percent by weight of carbonic acid or carbonates.

Claim 12. The process of Claim 19 wherein the waste water contains 4 to 12 percent by weight of common salt.

Claim 13. The process of Claim 19 wherein the TOC compounds include phenol.

Claim 14. The process of Claim 19 wherein the treating of the waste water is at 60 to 90°C.

Claim 15. (Cancelled)

Claim 16. The process of Claim 20 wherein the content of TOC compounds of the waste water is more than 5 ppm.

Claim 17. The process of Claim 20 wherein the content of TOC compounds of the waste water is more than 10 ppm.

Claim 18. The process of Claim 20 wherein the waste water contains 4 to 12 percent by weight of common salt.

Claim 19. A process for decomposing organic compounds present in waste water comprising

- (i) obtaining waste water having content of TOC compounds greater than 2 ppm, and pH lower than 7 containing at least 0.1 wt.% of dissolved carbonic acid or carbonates and 2 to 20 wt.% common salt, and

- (ii) treating the waste water with ozone at 10 to 130°C, at absolute pressure of 0.5 to 3 bar, and over a period of 1 minute to 10 hours and
- (iii) obtaining water having TOC lower than 1 ppm and pH greater than 7.5.

20. A process for producing chlorine comprising

- (i) obtaining waste water having content of TOC compounds greater than 2 ppm, pH lower than 7, containing at least 0.1 wt.% of dissolved carbonic acid or carbonates and 2 to 20 wt.% common salt ,
- (ii) treating the waste water with ozone at 10 to 130°C, absolute pressure of 0.5 to 3 bar, over a period of 1 minute to 10 hours to obtain an aqueous salt solution having TOC less than 1 ppm and pH of greater than 7.5, and
- (iii) subjecting said salt solution to electrolysis.

IX. EVIDENCE APPENDIX

No evidence has been submitted by Appellants.

X. RELATED PROCEEDINGS APPENDIX

Appellants' have not identified any applications under Section II, titled "RELATED APPEALS AND INTERFERENCES". Accordingly, there is nothing to submit under this section.